NUCLEAR SAFETY STANDARDS COMMITTEE

(NUSSC)

Report of the 28th Meeting

20 to 23 October 2009

International Atomic Energy Agency
Vienna
1. GENERAL ISSUES

1.1 Opening of the Meeting

Mr. Jamet, DIR-NSNI, welcomed the NUSSC members to their 28th meeting. He made some remarks on issues that he considered important to be conveyed to the Committee.

He gave a brief status report on the AdSec/CSS joint task force and informed NUSSC that the task force is pursuing short term and long term objectives with regard to the issue of safety and security synergy and its full coverage in the safety standards. The joint task Force met for the first time on Friday, 16 October 2009, after the CSS meeting to discuss first steps and the way forward on safety and security and integration. During a second meeting on 16 October 2009, the task force has discussed the terms of reference for their future work.

Mr. Jamet then focused on the role of industry in the IAEA Safety Standards development process. He reiterated that the CSS saw a need to clarify the role of industry and the public in the Strategy and Processes for the Establishment of IAEA Safety Standards (SPESS) and had identified three guiding principles to be established and maintained. The Secretariat, in July 2009, had prepared a paper that was reviewed by the chairs of the Committees. The purpose of that paper, according to Mr. Jamet, is to establish a clear set of criteria to determine which organizations may be invited at the various stages of development of the safety standards. The paper also specifies the expected contribution from these invited stakeholders in the review and approval process, including contributions in terms of feedback from the application of the safety standards. Finally, the paper also deals with the issue of co-sponsorship of the safety standards.

Mr. Jamet then drew the attention of NUSSC to events during the General Conference. He informed the Committee that there had been a panel briefing and discussion on the “Reliability of Supplies of Medical Isotopes Produced in Research Reactors: Issues for Regulators” on 18th September 2009. The meeting was attended by 76 participants from 34 Member States. The presentations addressed various issues related to the current 2009 shortage of the (Mo-99) medical radioisotope supply. Different solutions were discussed to mitigate future shortage of Mo-99, including regional co-operation to produce medical radioisotopes in geographic areas where some capable and underutilized research reactors are located.

Another important event was the Senior Regulators Meeting that also took place on 18 September 2009. The meeting addressed important topics. Two of them were of particular interest: Firstly, the coordination of international regulatory support for newcomers and countries expanding their nuclear power programme; and secondly, the long term management strategies for disused radioactive sources.

Mr. Jamet informed NUSSC on the INSAG Forum 2009, which was held on September 14, 2009. The forum dealt with “Responsibility for Safety in a Globalized Nuclear Environment”. The Forum discussed in particular emerging trends in nuclear safety in a globalized and multinational world, industrial standardization initiatives, and responsibilities for safety of an embarking country (i.e. UAE), as well as the support from a vendor country on the establishment of an appropriate safety infrastructure. The Forum concluded that these new issues will constitute an enormous challenge to the nuclear community and that some of them will need to be addressed at an international level where the IAEA could play a major role.

Mr. Jamet briefly informed NUSSC that during the INSAG meeting held from 7-9 April 2009, INSAG members agreed to develop a document on Integrated Risk Informed Decision Making (RIDM). A first draft was produced in July 2009. NSNI fully supported the preparation of the draft and the organization of the necessary consultant meetings. After review, a modified draft was produced as of 12 October. An INSAG subgroup met on 16
October to finalize the draft. The updated draft will then be presented to the forthcoming INSAG meeting from 3-5 November 2009.

Mr. Jamet then drew the attention to two events regarding the Convention on Nuclear Safety (CNS). He firstly informed NUSSC that a 1\textsuperscript{st} Extraordinary Meeting of the Contracting Parties took place on 28 September 2009. They approved the revision of the guidelines for the preparation of the national reports. Endorsed was also a brochure on CNS and its rules and procedures prepared by the Secretariat for training purposes. Secondly, he informed the Committee on the 5\textsuperscript{th} Organizational Meeting, which took place on 29 September 2009. The purpose of the meeting was to prepare for the 5\textsuperscript{th} Review Meeting (RM) to be held from 4-14 April 2011. 46 out of 65 Contracting Parties participated in the meeting, which was chaired by Mr. Bill Borchardt of the US-NRC. The meeting elected Mr. Li Ganjie of China as President of the 5\textsuperscript{th} Review Meeting and Mr. Bill Borchardt of USA and Mr. Patrick Majerus of Luxembourg as Vice-Presidents for the 5\textsuperscript{th} RM. Mr. Jamet informed NUSSC that the Convention has now 66 Contracting Parties and 13 Signatory States that have not yet ratified the Convention. Mr. Jamet was pleased to inform NUSSC that five countries, namely Iceland, Senegal, Jordan, the United Arab Emirates and the Libyan Arab Jamahiriya recently became full Contracting Parties to the Convention.

Finally, Mr. Jamet mentioned two international events of interest to NUSSC. He reminded the Committee of the International Conference on Effective Nuclear Regulatory Systems: Further Enhancing the Global Nuclear Safety and Security Regime, 14-18 December 2009, Cape Town, South Africa, and informed on the International Conference on Operational Safety Performance and Experience Sharing of NPP and FCF, planned from 22-24 June 2010 in Vienna.

1.2 Chairman’s Introduction

Mr. Vaughan thanked Mr. Jamet for his address and welcomed all Committee members. He gave a short introduction how he would like to conduct the meeting. Some members sent their apologies for not coming to Vienna. Several NUSSC members did not sent a reply at all. He then gave a short overview on the issues to be discussed during the meeting, e.g. how to get more involvement of the members, 5\textsuperscript{th} three year report, interaction with other Committees, the new terms of reference for the SSCs, Strategies and Processes for the Establishment of Safety Standards (SPESS) and review vs. revision.

1.3 Adoption of the agenda of 28\textsuperscript{th} Meeting

Mr. Feige informed NUSSC that the draft agenda of the 28\textsuperscript{th} meeting was put on the website prior to the meeting. Three additional items were added to the agenda (1.12, 1.13 and 5.2).

► NUSSC approved the amended agenda for the 28\textsuperscript{th} Meeting (Appendix I).

1.4 Approval of the report of the 27\textsuperscript{th} Meeting

Mr. Feige informed the members that draft 1 of the report of the 27\textsuperscript{th} meeting had been posted on the website. NUSSC members had submitted their comments prior to the meeting. The comments had been implemented in the current draft 2. There were no additional comments raised by the Committee.

► NUSSC approved the report of the 27\textsuperscript{th} Meeting.
1.5 Action of the 27th NUSSC Meeting

Mr. Feige presented the status of the actions that followed the last NUSSC meeting. The actions were all carried out with the exception of action 27.1 (26.11): Prepare a few examples on the practicability of merging safety guides. As for this action, Mr. Feige argued that it was somewhat outdated and thus not an issue any more, because it was requested before the CSS had approved the reference list of safety guides for the long term. The latter was done during the 26th CSS meeting held from 14 - 16 Oct. 2009.

Actions 27.5: Consider establishing a small group to review safety guides as a standing part of the process and 27.6: Consider preparing a TECDOC on the application of “graded approach” for nuclear installations/facilities are considered “longer term actions”.

Mr. Vaughan thanked Mr. Feige for the update on the previous actions.

► NUSSC was satisfied with the resolution presented by the Secretariat.

1.6 Dates of the next meetings

The following dates for the next meetings of NUSSC were proposed by the Secretariat:
29th NUSSC from 28 June to 2 July 2010 (Joint meeting with WASSC for 1 or 1 ½ day, tbd)
30th NUSSC from 12 to 15 October 2010.

► NUSSC agreed on the proposed dates for the next meetings.

1.7 NUSSC working methods

Mr. Feige presented a list of items regarding the working methods that emerged after the last NUSSC meeting. His main concern was again that the deadlines for comments by NUSSC members and MS comments were not respected, which make it almost impossible for the TO keeping his schedules. Another issue was that he sensed an increasing tendency of the members to send their comment directly to him rather uploading them on the website.

Mr. Feige also reported that NUSSC members do not inform about their attending in response to the invitation letter, which would lead later to difficulties with security at gate 1.

NUSSC members mentioned that the Secretariat posted resolution tables and track changes drafts on the website too short prior to the meeting.

Mr. Vaughan closed the discussion by emphasizing that a disciplined approach regarding the deadlines is essential to the process.

► NUSSC agreed that keeping the deadlines for commenting is of utmost importance to the development process of the safety standards.

1.8 Feedback on regulatory arrangements and current developments in NUSSC Member States

NUSSC members from Germany, Czech Republic, Slovenia, Spain, and the EC gave short presentations on their national situation regarding the regulatory arrangements and current developments, as well as their future involvement in the work of NUSSC.

The EC gave an additional presentation on the new EC directive on nuclear safety, which is to a large extent based on the IAEA Safety Standards. It also recommends to the EU Member States to the request IAEA Safety Services, such as IRRS.
The representative of Sweden, who did not attend the meeting, will give the presentation at the next NUSSC meeting. For the meeting in June 2010, Hungary, Indonesia, Sweden, Malaysia, Pakistan and Romania volunteered to make presentations.

1.9 Report on international activities

Lessons learned from Olkiluoto 3 Project (EPR)

Mr. Valtonen from the Finnish Nuclear Regulatory Body (STUK) gave a presentation on the lessons learned from Olkiluoto 3 Project (EPR). He started with a brief overview on the licensing and regulation of nuclear facilities in Finland. He pointed out that licences for nuclear facilities in Finland are issued by the Government. The Ministry of Employment and the Economy provides administrative support for processing licence applications and STUK is responsible for the safety regulation. According to Mr. Valtonen, there are basically three licensing steps:

• Decision in Principle (DiP): main emphasis energy policy
• Construction License (CL): main emphasis nuclear safety
• Operating License (OL): main emphasis nuclear safety

He then focused on the various lessons learned during the ongoing construction of Olkiluoto 3 EPR. He stated that building a new NPP after a long time is very demanding, because of new advanced design features, increased unit size, and new technologies. As a consequence, the schedule of the project slipped at the beginning, but when the initial problems had been resolved, the construction started to proceed quite well. Mr. Valtonen emphasized that in contrary to the public reception, the Olkiluoto 3 project is not considered as a warning example for new build, but has provided valuable lessons for subsequent projects.

According to Mr. Valtonen, the schedule of building the nuclear island is about three years behind schedule. Main reasons for delay are among others a too ambitious schedule for a plant that is first of its kind and larger than any NPP built earlier, inadequate completion of design and engineering work prior to start of construction and the lack of experience of parties in managing a large construction project. However, the construction of the turbine island has progressed much better because of the close co-operation between the turbine island vendor and an experienced construction company.

Mr. Valtonen stated that in planning and scheduling new build, it is necessary to recognize that circumstances are quite different from the 1970’s when most of the currently operating plants were constructed. Vendors at that time had large experienced organizations, incorporating comprehensive in-house capability for design and manufacturing and thus less need for subcontractors. Vendors as of today have lost much knowledge and skills when experienced experts have retired, and also new type of competence is needed for new technologies (e.g. establish a sub-contractor network).

Regarding the preparation of the project, early contacts between vendors, licensee and the regulator are inevitable. Feasibility studies of several designs in the early stage of the project were found very useful and facilitated the subsequent licensing process. As a consequence, each design proposed in bidding was improved from the original version that was reviewed tentatively during the DiP process.

Mr. Valtonen emphasized that the vendor needs to understand and take seriously the national regulatory practice in order to avoid problems. In Finland, the regulatory practice is different from what Areva had met elsewhere, in particular for non-standard equipment. For safety class 1 and 2, a so called Construction Plan including design and manufacturing information and Quality Control (QC) plan must be approved by both, licensee and STUK before manufacturing or construction is allowed to start. In the Olkiluoto 3 project, detailed design had been done too late and consequently, the delivery of the Construction Plan to STUK for review had been delayed.
With regard to ensuring good management of the subcontractor chains, Mr. Valtonen stated that it is important for sub-contracts that the vendor clearly indicates and emphasizes the nuclear specific practices. The nuclear specific practices were not properly recognized and understood by the sub-contractors and difficulties emerged in the different stages of the construction. Lack of coordination and communication within the vendor consortium has been a problem, too, especially in the early stages of the Olkiluoto 3 project.

Mr. Valtonen emphasized the importance of a regulatory oversight of the construction. He informed NUSSC that throughout the project there had been multiple quality controls, carried out by the manufacturer, the licensee and STUK. Therefore, the product deviations had generally been detected with high sensitivity. However, in some situations the QC inspectors faced too much economic pressure, and may not be in a position to enforce corrective actions. In such situations, a stringent regulatory approach and inspections are thus needed to verify that new manufacturing techniques and new type of equipment meet the specifications set by the designer.

Mr. Valtonen concluded with the statement that starting new build is demanding because much of the earlier experience and resources had been lost from the nuclear industry. It is necessary to allocate adequate time to good preparation of the project before the actual construction start. During the construction of Olkiluoto 3, STUK recognized that close monitoring and oversight by both TVO (licensee) and STUK (regulatory body) were necessary to meet the specified technical standards and criteria. Encouraging progress in that regard had been made during the project, and currently the construction seems to proceed fast and smoothly.

Finally, Mr. Valtonen emphasized that the quality of Olkiluoto 3 structures and components had not been compromised. The observed difficulties at the construction stage had not influenced the safety of the power plant for future operation.

Mr. Vaughan thanked Mr. Valtonen for his comprehensive presentation. There was a brief discussion on how Finland is conveying its lessons learned to other countries with new build, like France. Mr. Valtonen stated that Finland has discussions with vendors, licensees and regulators all over the world and is participating in international projects like MDEP and Generation IV.

1.10 Report on Site Activities EPR Flamanville 3 Reactor

Mr. Fourest (speaking under his EdF hat) gave a presentation on the developments and activities regarding the construction of the Flamanville 3 EPR project. He informed NUSSC on the main steps of the project:

- Decree for Authorization to build the Flamanville 3 nuclear plant - April 2007,
- 1st concrete for the reactor poured onto the Flamanville site – December 2007 (on schedule),
- Civil Engineering - 2008 - Mid 2011,
- Electro mechanic work (piping, cabling) - 2008 - Mid 2011,
- End of construction and preliminary tests - 2011 – 2012,
- Start-up of the plant – 2012.

He then gave a detailed description of the status and progress of the construction of major plant buildings, e.g. for the reactor, fuel, nuclear auxiliaries, Diesels, waste, turbine, water pumping and outlet channel.

Mr. Fourest drew the attention of NUSSC to the feedback from the first months of construction on site. He presented some points that were worth watching. Firstly, there were the technical hazards or issues that were dealt with, such as the volume of steel rebars in civil engineering work and the welding of the metal liner. He reported further on the delay in drilling the on-shore well for the discharge tunnel in the sea and the quality of surveillance.
In addition, regulatory changes or new regulations had to be considered like the “Nuclear Pressure Equipment” regulations and the “Security” regulations,

With regard to the conventional island, the assembly is underway on schedule and manufacture of the large components is proceeding without significant delay. The delivery of an initial version of the simulator took place in June 2008. Mr. Fourest pointed out that the availability of a simulator less than one year after the 1st concrete was poured, is unprecedented for a new design reactor in France.

Finally, Mr. Fourest informed NUSSC on the elements of a continuous improvement in the project monitoring processes in order to ensure the smooth progress of the project, such as a strict supervision on the “nuclear” expertise/practice of companies, a better anticipation of all kinds of issues and a high quality of the surveillance of the site and project activities.

Mr. Vaughan thanked Mr. Fourest for his presentation.

1.11 Construction Oversight of the EPR Flamanville 3 Reactor

Mr. Feron from the French Regulatory Body (Autorité de Sûreté Nucléaire, ASN) gave a presentation on the regulatory oversight of the construction of the EPR–Flamanville 3 reactor. He briefed NUSSC that on behalf of the state, ASN regulates nuclear safety and radiation protection. ASN also helps drafting regulations by submitting its opinion to the Government on draft decrees and ministerial orders. In addition, it issues regulatory decisions of a technical nature. ASN regulates all civilian nuclear activities, such as NPP, radioactive waste management, nuclear fuel, transport, research laboratories, medical installations, and industrial activities.

According to Mr. Feron, ASN’s activities until the authorization to load fuel and to operate the plant comprises the oversight of the construction of Flamanville 3, in particular to ensure its quality and its ability to comply with safety, radiation protection and environmental requirements, the anticipated assessment of regulatory documents that are part of the operation application, such as new methodologies and principles, and finally, to the assessment and definition of environmental prescriptions, like water intake and effluent discharges.

Mr. Feron pointed out that ASN has to check that the construction of the NPP is in compliance with the “new” nuclear safety act issued in June 2006 and related decree issued in November 2007. ASN has also to define principles and methodologies in accordance with those regulations.

In September 2008, ASN enacted Flamanville 3 prescriptions, i.e. licence conditions related to the detailed design and the construction review.

Another important issue for ASN is to ensure that the operator does collect construction feedback, because there was no construction during the last 10 years in France. In addition, the feedback includes the lessons learned from the parallel construction of Olkiluoto 3 NPP in Finland.

Mr. Feron stated that ASN has in 2009 scheduled 30 inspections to the Flamanville 3 site. Main topics were the civil works (e.g. reactor building: internal structures, containment outer wall, fuel building, IRWST mock-up, welding quality of the liner), the quality and safety management (e.g. non-compliance management, providers management), emergency situation management (fire, etc.), management of hazards to adjacent operating reactors due to EPR construction activities, radiation protection, and industrial safety inspections.

In 2009, ASN also inspected the EDF engineering office several times. Main topics for inspection were for instance EDF’s management of manufacturer’s control, the qualification programme and interface management. Main findings according to Mr. Feron were related to some lack of interaction between on-site activities and engineering services and some lack
of safety culture (see inspection follow-up letters on ASN's website for more precise information). Consequently, improvements were performed by EDF. There had been shortcomings in the quality management of the licensee and manufacturers as well.

On the nuclear pressure equipment (e.g. steam generator, pressurizer, etc.), ASN had performed 59 inspections in 2008 and so far 50 inspections in 2009.

Each inspection is followed by a letter to the licensee, which is also available on ASN's website.

Mr. Feron then drew the attention of NUSSC to the detected main non-compliances. In December 2007, cracks larger than allowed by code ETC-C in nuclear island base mat were detected. In May 2008, ASN imposed a hold point for the concrete activities of the buildings relevant to safety during three weeks because of several non-compliances related to reinforcement activities. In February 2009, ASN asked EDF to perform additional controls concerning the quality of the liner welds, because ASN observed a high level of repair rate. All three issues had been resolved by the constructor.

Finally, Mr. Feron focused on the EPR international cooperation. It had started in 1989 with the French and German political decision to launch the EPR project. The cooperation at that time aimed at the definition of common safety objectives, whereas the cooperation today is aimed at making the safety assessment more robust (MDEP work). This is going to be achieved by sharing practices, technical assessments and construction oversights. In case one has the same design, the goal is to have a better understanding on why regulatory positions are either similar or different, and to enhance each regulator position by a wider knowledge of issues and positions of other regulators.

Mr. Vaughan thanked Mr. Feron for his presentation. The Committee emphasized the importance of construction experience sharing, such as the MDEP group, as well as bilateral meetings with UK HSE and Finnish STUK and the OECD construction data base.

1.12 Interaction with other Committees

Mr. Vaughan gave a brief report on the previous four chairs meetings. He informed NUSSC that the four chairs are now playing a more important role in discussing common issues and smoothing down controversial issues between the Committees. As a consequence, the Four Chairs decided to meet frequently after all Committees meetings. There will be Four Chairs’ meetings in 2010: Two after Committees meetings and two before the CSS meetings.

The wording and format of the requirements and SPESS had been discussed and the special issue of technical editing had been raised in particular by Mr. Vaughan. He stated that there is a fine line between technical editing and changing the meaning of a text that was approved by a Committee before it went to the editors. As an example, he mentioned the discussion and decision regarding DS415 in the last CSS meeting.

The Four Chairs were of the opinion that the Committees should have more knowledge on what the others are doing. Thus it was agreed that the scientific secretaries represent their Committees in the other Committee meetings, by presenting information on important issues that were discussed in their Committees and that might be of interest to the other Committees. It was agreed to have joint meetings of the Committees where these could be useful or necessary. The first of these involving NUSSC would be in June 2010 with WASSC. NUSSC members are requested to suggest issues for such joint discussions.

1.13 Report of the 26th CSS Meeting

Mr. Delattre summarized the results of the 26th CSS Meeting held from 14 to 16 October 2009. He informed NUSSC on the safety standards that had been endorsed by the CSS:
- Disposal of Radioactive Waste, Safety Requirement (DS354),
- Governmental, Legal and Regulatory Framework for Safety, Safety Requirement (DS415),
- Chemistry Programme for Water Cooled Nuclear Power Plants, Safety Guide (DS388),
- Radiation Safety in Industrial Radiography, Safety Guide (DS408),
- Radiation Safety of Gamma, Electron and X Ray Irradiation Facilities, Safety Guide (DS409),
- Ageing Management for Research Reactors, Safety Guide (DS412),
- Licensing Process for Nuclear Installations, Safety Guide (DS416),
- Seismic Hazards in Site Evaluation for Nuclear Installations, Safety Guide (DS422).

CSS had also approved the following new DPP:
- DPP for a revision of NS-G-1.8, Safety Guide on Design of Electric Power Systems for NPPs (DS430),
- DPP for a revision of NS-G-1.1 and NS-G-1.3, Safety Guide on Design of I&C Systems for NPPs (DS431),

Progress report on the development of the Safety Guide DS424 was given and CSS agreed the pilot use of the draft.

Mr. Delattre then briefly reported on the Commission’s discussion of policy issues:

1. Requirement GS-R-1 (DS415).

Proposals for many changes to the approved draft were rejected. However, CSS accepted the objective to better clarify that overarching requirements and associated conditions are both requirements. Therefore, all what is actually explanatory text or descriptive statements will be clearly identified as such. In order to better specify this, a new paragraph 1.5 was added to the text: this, which reads:

"1.5 This publication establishes safety requirements both as overarching statements in bold type and as concomitant statements of associated conditions. Descriptive statements are included, as necessary, in another style."


The issues of SPRESS were discussed previously in NUSSC. According to Mr. Delattre, SPRESS will use a consistent description of the format and not anymore reflect the historical evolution. There will be further clarification on the Safety Glossary. SPRESS will also reflect the agreement by the four chairs that the review by the Technical Editors will be done after MS comments resolution and at the latest in parallel with the Committees approval. Mr. Delattre informed the Committee that with regard to the issues Mr. Vaughan raised earlier in the meeting, it will also be clarified that changes made by the editors, when they possibly affect the substance, will be discussed at the Committees meetings (see also item 2.1).

3. Reference list of Safety Guides

Mr. Delattre informed that the reference list of safety guides and the criteria for use were approved. The Commission had requested that at each CSS meeting the update of the reference list be presented. The update will reflect actual result of the CSS approval of DPPs. In that regard, Mr. Delattre gave two examples, where the scope had been changed (restricted to NPP only):
• DPP for a revision of NS-G-1.8, Safety Guide on Design of Electric Power Systems for NPPs (DS430)
• DPP for a revision of NS-G-1.1 and NS-G-1.3, Safety Guide on Design of I&C Systems for NPPs (DS431).

(4) Terms of Reference.
Mr. Delattre informed on the necessity to have new terms of reference for the next terms in order to reflect the decisions with regard to the stakeholder involvement and SPESS. The Safety Standards Committees members and the members of the Commission on Safety Standards were asked to provide suggestions with regard to the Terms of Reference for the next cycle.

Joint AdSec/CSS Task Force
Mr. Delattre informed NUSSC that the task force in its last meeting discussed its terms of reference (ToR). The establishment of a Nuclear Security Series Committee was announced during the meeting. The ToR of such a Committee must be consistent with the ones of the Safety Standards Committees, i.e. the similar establishment of a review process.

Mr. Delattre presented an excerpt from the proposed ToR:

For the short term:
• on the legal basis for the IAEA activities on nuclear security, the task force will consider the assessment performed by the IAEA Secretariat of related legal, statutory and policy issues;
• the task force will follow the implementation of the measures decided to strengthen, and ensure the transparency of, the process for the review and approval of the Nuclear Security Series publications;
• the task force will propose steps to progressively establish, within the present regime of developing nuclear safety and security publications, the necessary interface of nuclear safety and security related draft publications, including their cross-verification, to ensure their completeness and consistency.

For the long term, the task force should study the feasibility of the establishment of a Nuclear Safety and Security Standards Series that would have full coverage of nuclear safety and nuclear security.

The next meeting of the task force will be held before the next CSS meeting on 16 March 2010.

Mr. Vaughan thanked Mr. Delattre for his presentation. There was a brief discussion on the format of the requirements, but no additional issues were raised by the Committee.

2. STRATEGY FOR FUTURE DEVELOPMENT AND APPLICATION OF THE IAEA SAFETY STANDARDS

2.1 Strategies and Processes for the Establishment of Safety Standards (SPESS) — Status
Mr. Delattre gave a presentation on the document Strategies and Processes for the Establishment of Safety Standards, SPESS (former MANSYS). He reiterated that the first document was prepared in January and a draft table of content was prepared in March 2007. CSS was informed in June 2007.
He reminded NUSSC that the objective of this document is to describe the strategies, the processes and associated responsibilities for the planning, development, review and revision, approval and establishment of the IAEA Safety Standards.

In February 2008, draft 0.1 was submitted to the Committees for comment. These comments were incorporated in draft 0.2. Policy issues discussions in May 2008 and September 2008 resulted in draft 0.3. Draft 0.3 was discussed at the four chairs meeting in January 2009. The comments of the chairs and other changes (Coordination Committees and revised DPP template for example), were incorporated and resulting in the draft 1.0. Draft 1.0 was submitted to the Safety Standards Committees prior to their meetings in June/July 2009. Progress reports were presented at all CSS meetings in 2007, 2008 and 2009.

Mr. Delattre briefly reiterated the structure of the SPESS document:

Section 1: Mandate of the IAEA with regards to the safety standards, historical perspective, vision on the future of the safety standards, need for this document and history of its development

Section 2: Basic strategy to achieve this vision. The section 2.H on stakeholder involvement will include version expected at the CSS in March 2010 after its current discussion with the Committees (comments by 31 December 2009)

Section 3: Main processes involved and the related responsibilities and functions

Section 4: Process for keeping this document up-to-date, including through the self assessment of its application

Annexes: Most important policy papers

The SPESS document will be accompanied by an application manual with a detailed step by step process, detailed guidelines, instructions and examples.

Mr. Delattre informed NUSSC that he had received comments from Germany and the US. He then presented the resolution of the comments to the Committee.

Germany had comments on section G (page 33) that actually were implemented in the application manual. He then drew the attention on several comments made by the US:

US comment 4: Changes to be made on pages 23, 28:…to indicate in a consistent manner the format and style of safety standards and particularly the safety requirements in order to facilitate their use for the establishment of the regulatory framework in Member States.

US comment 14: Change on page 25 third bullet: “how each of these requirements can be met (instead of is to be met)”.

US comment 19 and 27: Change on page 39, Use of the IAEA Safety Glossary 2nd paragraph. At the end of the first sentence, add “specifying in the list of references which edition of the safety glossary is used”.

Change on page 39, Use of the IAEA Safety Glossary: add at the end of the 3rd paragraph “For example, when the Safety Glossary contains several definitions for one term, this section could specify which one applies to these specific safety standards”.

Change on page 64, 2nd para, add after “web site” “New or revised definitions will not apply retrospectively”.

US comment 21: Change on page 44 first sentence: After “standards programme”, “in compliance with the Agency’s Statute and established obligations and rules 3. Then start the second sentence with “The division directors …”.

US comment 23: Change on page 53, 10th bullet “To verify that usage of terms is consistent with terminology in the current edition of the IAEA Safety Glossary”.

US comment 26: Change on page 55, new bullet after 3rd bullet “To check the changes proposed by the Technical Editors and verify that these do not affect the substance of the recommendation. In doing so, the TO should consult the relevant Safety Standards Committees on any changes that may be understood as affecting the substance and seek the view of the Committees on these.”

Finally, Mr. Delattre informed NUSSC on the next steps in the preparation of SPESS. A revised SPESS document, which incorporates the resolution of the comments from CSS will be posted on the Committees web site, together with the draft of the application “Step by Step Preparation and Review Process — Manual for the application of SPESS“. After that, the draft will be revised accordingly and discussed again with the Four Chairs. Eventually, the draft document will be submitted to the CSS at its meeting in March 2010. The final draft will also include the section H on stakeholder involvement. This document has to be approved separately by the Commission.

Mr. Vaughan thanked Mr. Delattre for his presentation. The Committee, in general, was pleased with the document and considered it to be a good management tool for the Secretariat for the preparation of the IAEA Safety Standards. Since this was a “living document” and subject to future changes, NUSSC did not see the necessity of a formal approval of the document. However, they requested some more time to review the revised draft. There were no additional issues raised by the Committee.

- NUSSC agreed to send comments on Strategies and Processes for the Establishment of Safety Standards (SPESS) to the Secretariat by end of December 2009 (Action 28.5).

2.2 Policy Paper of Stakeholder Involvement

Mr. Delattre gave a presentation on the Policy Paper of Stakeholder Involvement. He reiterated that the purpose of this paper is to establish a clear set of criteria to determine which organizations may be invited at the various stages of development of the IAEA Safety Standards. He emphasized that this issue was not related to the stakeholder involvement by the Member State’s own activities. It only relates to the involvement of stakeholders for the preparation, drafting, review and approval of the safety standards. Four main stakeholders had been identified:

- Member States (MS);
- UN and specialized agency (UNA);
- Other Intergovernmental Organizations (IGO);
- Non Governmental Organizations (NGO).

Mr. Delattre pointed out that the approval of safety standards is possible only by Member States representatives, who are almost wholly drawn from the national regulatory bodies. The review is also mainly for Member States but it was agreed to involve as observers a few IGOs and NGOs with established criteria for their selection. One particular case concerns the involvement of a national stakeholder by a nominated member of a Committee. A national position should be established and provided by the member who shall head the delegation.

Mr. Delattre informed NUSSC that the involvement of all stakeholders was welcomed and encouraged for the drafting of new standards or their revision. In the latter case, this is considered crucial for obtaining the feedback on the previous edition.

According to Mr. Delattre, the main criterion for the involvement is that the organization will make a significant technical contribution to the work of the relevant Committee. The
main expectation is that the organizations provide expert information or advice in their special area of competence, and that the contributions are a priori validated within that organization as accurately representing the views of that organization.

Regarding the main organizational issue, it is the responsibility of the chairperson of the respective Committee to allow the invited organization to present or summarize the contribution at the meeting.

Mr. Delattre then informed NUSSC on the next steps in the preparation of the document. The draft was posted on the web site of the Safety Standards Committees since September 2, 2009. The members of the Committees are requested to provide their comments by December 31, 2009. After that, the draft will be revised and review by the four chairs in January 2010. Eventually the draft document will be submitted to the CSS for its meeting in March 2010. The final paper will be incorporated as section 2.H of the SPRESS.

Mr. Vaughan thanked Mr. Delattre for his presentation. The Committee was of the opinion that this was a good paper. It gives clarity on the involvement of the various stakeholders in the preparation process of the safety standards. NUSSC requested again some more time to review the document. There were no additional issues raised by the Committee.

NUSSC agreed to send comments on Policy Paper of Stakeholder Involvement in the preparation of IAEA Safety Standards to the Secretariat by the end of December 2009 (Action 28.6).

3. REVIEW OF DRAFT SAFETY STANDARDS

3.1 DS44 Criteria for Use in Planning Response for Nuclear and Radiological Emergencies

Ms. Buglova gave a presentation on draft Safety Guide DS44. She reminded NUSSC that this safety guide has come a long way. She gave a brief history of the manuscript. She reminded NUSSC that the DPP was approved almost 10 years ago. DS44 supports the safety requirements GS-R-2 Preparedness and Response for a Nuclear or Radiological Emergency. The guide contains the detailed technical aspects of the requirement document. During the development of GS-R-2, numerous technical aspects of emergency planning and response had been identified that were not addressed by existing safety guides, such as insufficient radiological basis for response and no basis for criteria required by GS-R-2. These criteria are needed, e.g. to prevent occurrence of severe deterministic health effects and timely treatment of severe deterministic health effects (if they occur).

Ms. Buglova reported that the document had been submitted to Member States for comment in November 2008, and that a consultancy meeting was held in April 2009 to address the comments (with ICRP, regional representation and WHO involvement). The draft was then presented to RASSC, WASSC and TRANSSC in June 2009. The Committees approved the draft for submittal for CSS. The same draft was uploaded to the website prior to the NUSSC meeting and she had received NUSSC comments from France, Japan, Pakistan, UK and USA. She presented the comments and the proposed resolutions one by one:

Comment: Separate generic criteria for each protective action should be established.
IAEA response: Other Committees and Member States support only a few generic criteria, because it is more practical.

Comment: Inclusion of OILs for medical management and treatment.
IAEA response: OILs decontamination (within medical management), registration and provision for med evaluation are included. The text was developed together with the WHO.

Comment: Inclusion of generic criteria for termination of protective actions.
IAEA response: Other Committees and Member States support to exclude such criteria from DS44.

Comment: Terminology (nuclear and radiological emergency). Why not ‘radiological’ only?
IAEA response: Consistent with the Safety Glossary and GS-R-2. Cover both, reactor and facility emergencies, as well as any emergencies with involvement of sources.

Comment: Appendix on EALs to make as Annex.
IAEA response: Consensus is to have it as Appendix. Revision is based on previous comments (specific CS).

There were also some other issues addressed: the Appendix on observables for radiological emergency is put back in the document, based on RASSC/WASSC/TRANSSC proposals. Additional references to the source/support documents that are provided and non-published references are deleted. Several issues were clarified, e.g. substantial risk, avertable dose, dangerous sources and threat categories.

Ms. Buglova then asked the Committee for their approval for submission to CSS for endorsement.

Mr. Vaughan thanked Ms. Buglova for her presentation and opened the floor for discussion. The Committee was now quite satisfied with the text. Because NUSSC had commented on the previous version, NUSSC requested that the Secretariat uploads the revised version and the comments resolution table on the website, which was done. There was no additional issue raised.

► NUSSC agreed that Safety Guide DS44 Criteria for Use in Planning Response for Nuclear and Radiological Emergencies could be submitted to CSS.

3.2 DS 371 Storage of Spent Fuel

Mr. Metcalf gave a presentation on the draft safety guide on storage of spent fuel. The draft had been sent to MS for comment in 2008. He had received 535 comments, which had been addressed during a CS meeting with five consultants in early 2009. After submitting it to WASSC/TRANSSC/NUSSC, he had received 250 comments. The draft was approved by WASSC and TRANSSC, not by NUSSC in June 2008. After uploading the revised draft together with the comment resolution tables prior to the NUSSC meeting, he had received a total of 120 comments from NUSSC members.

Mr. Metcalf asked the Committee to approve the document for submission to CSS.

Then Mr. Metcalf presented a summary of the main issues addressed by the NUSSC members and the proposed resolution and asked for approval by NUSSC. The chairman suggested discussing the resolutions as they were presented:

Comment Japan on para. 6.32: No need for the evaluation of consequences of the criticality, accidents due to the sufficient margins to the criticality. The concern was that one does not have highly reliable data and methodologies to evaluate the consequences of criticality accidents in fuel storage facilities.

Resolution: This was not accepted by the Secretariat, because one always has to use the data that are currently available and present the reason why this specific model or tool was used.
NUSSC agreed with the Secretariats proposal.
Comment Japan on para 6.33: Criticality margin of 5% included. Suggestion it could be lower (2%) for reliable calculations, hence remove specificity. Germany emphasized 5% is in common usage and proposed to put it in a footnote as a compromise. The Concern here was that the wording is very strict and thus an exact value should be avoided.

Resolution: NUSSC agreed that the Secretariat should either put in a footnote and explain in more detail or introduce “5% or less”. The final decision how to do it should rest with the TO.

Comment UK on Article I.3: Avoid the use of soluble boron poisons.
The article reads: In the criticality safety of pool storage, the use of soluble neutron poison should be avoided. If this is not possible or if the operator chooses to use soluble neutron poison such as borated water, the design of the facility should include engineering features to preclude an increase in the reactivity of stored fuel caused by the inadvertent dilution of the pool water by the addition of non borated water, where soluble boron is used for criticality control.

One could use a better wording. The intent was to avoid the use of Boron, because of the danger of dilution. Sub-criticality without Boron has to be demonstrated. After a long discussion, the Secretariat prepared the following proposal for a new wording of the paragraph:

Resolution: I.2. The criticality safety of pool storage should not rely on the use of soluble neutron poison. If this is not possible or if the operator chooses to use soluble neutron poison such as borated water, the design of the facility should include engineering features to preclude an increase in the reactivity of stored fuel caused by the inadvertent dilution of the pool water by the addition of non borated water, where soluble boron is used for criticality control.

NUSSC agreed to the proposal.

Comment on Terminology: “cask” is not in the Glossary.

Resolution: This correct but the TO prefers to use it throughout the document. The term is commonly used elsewhere.

NUSSC agreed to the proposal of the Secretariat.

Comment UK on Contingency: Should not be part of emergency plan but in case of degradation of e.g. of spent fuel or equipment.

Resolution: NUSSC agrees with the use throughout the document.

Comment UK on 5.10: Value of site features in safety case. Is a clay layer for instance part of defence in depth and can safety case give allowance?

UK was concerned about the value of additional protective barriers.

Resolution: It was proposed adding: “but not as a prime safety barrier.” NUSSC agreed with that proposal.

Comment UK on 6.34: Use conservative or reasonable conservative in respect of criticality.

Resolution: The Secretariat accepts “conservative”.

NUSSC approved the resolution.

Comment on 6.34 (d): Deletion of the term “Pessimistic” assumptions for criticality assessment.

Resolution: NUSSC accepted that the term “pessimistic” be removed.

Comment on 6.42: Consideration of cladding degradation.
**Resolution:** The Secretariat proposed that cladding degradation should be excluded by design and not considered as such. NUSSC agreed with the proposal.

— Comment on 6.105: Monitoring should be carried out.

The concern of the Secretary was that it would be difficult to justify not monitoring the integrity of spent fuel in storage.

Resolution: NUSSC agreed that monitoring should be carried out, but to an extent depending on the actual cask.

Mr. Vaughan thanked Mr. Metcalf for his presentation. There were no additional issues raised by the Committee.

► NUSSC agreed that Safety Guide DS371 Storage of Spent Fuel could be submitted to CSS.

### 3.3 DS413 Safety Requirement – Safety of Nuclear Power Plants: Commissioning and Operation

Mr. Kearney gave a presentation on the Safety Requirement DS413. He informed NUSSC on the background of the manuscript. The DPP was approved by the Committees in March/April of 2007 and by the Commission in November 2007.

The drafting was done after a Technical Meeting in September 2007. The draft was approved by the Committees in March/May of 2008 and sent to Member States for comment. He pointed out that he received 495 comments from the Member States (Canada 13, Finland 44, France 127, Germany 36, Hungary 40, India 22, Japan 26, Netherlands 70, Pakistan 1, Slovak Republic 11, Spain 5, Switzerland 14, UK 55, ENISS 31). 374 comments were accepted and 121 were rejected.

A Consultants Meeting took place from 22-26 June 2009 with experts from Finland, France, Germany, Hungary Netherlands, and the UK. He emphasized that after an internal decision and in agreement with the NUSSC chairman, the requirement was rewritten in the new format for safety requirements, without sending it again to Member States for comment. Subsequently, manuscript (draft 9) was posted on the website in August 2009 prior to the NUSSC meeting. Mr. Kearney stated that he had received a total of 125 comments from NUSSC members (Finland 26, France 45, Germany 1, Japan 10, Pakistan 3, USA 8, ENISS 31, WNA 1).

Mr. Kearney informed the Committee that a resolution table of the NUSSC comments and a marked up version incorporating the comments (Draft 10) were posted on the NUSSC website prior to the meeting. According to him, there were no unresolved issues.

Regarding the future activities, Mr. Kearney pointed out that the document is being submitted to the TRANSSC, RASSC and WASSC during their meetings in October/November 2009. After approval by all Committees, it is foreseen to submit the draft to CSS in March 2010, followed by the approval of the Board of Governors in September 2010.

Finally, Mr. Kearney asked for the approval by NUSSC for submission of the draft to the Commission.

Mr. Vaughan thanked Mr. Kearney for his presentation and opened the floor for discussion. The first issue mentioned was how the wording of the manuscript will look like in the light of the CSS decision on wording for requirements documents. Mr. Kearney in reply stated that currently the text includes “shall” in the requirements in bold, and “present tense” in the supporting statements. He stated that the draft will be given to the editors to convert all
present tense statements into “shall” statements. The updated version will be reviewed by the NUSSC chairman before submitting to the CSS.

The second issue raised and discussed in some length concerned para 5.11 on radiation protection. The Committee recognized that the term “accident conditions” was added to the text. This was considered very confusing, because the wording then assumes that there are “authorized limits for accident conditions”. In order to resolve the issue, the Secretariat came up with a new proposal for the wording for this paragraph, which read:

5.11 The radiation protection programme ensures that in all operational states doses due to exposure of ionizing radiation in the plant or due to any planned releases of radioactive material from the plant are kept below authorized limits and are as low as reasonably achievable.

All Committee members agreed to the Secretariats’ proposal.

► NUSSC agreed that Safety Guide DS413 Safety Requirement – Safety of Nuclear Power Plants: Commissioning and Operation could be submitted to CSS subject to the approval of the other Committees.

3.4 DS379 International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources, Draft Safety Requirements (Revision BSS)

Ms. Czarwinski gave a presentation on the status of the BSS revision. She reiterated that draft 1.0 had been reviewed by the Safety Committees in November 2008. All comments from the last Committees meetings were addressed. The Secretariat and the BSS secretariat had approved the move into the new format for safety requirements and proposed a process to achieve that goal. She informed NUSSC that draft 2.0 was discussed in June 2009.

Draft 2.5 was posted on the SSCs website on 2nd October 2009 for comments. As for the next steps, she informed NUSSC that there will be further discussion at the RASSC meeting from 16-19 November 2009. A Radon seminar is scheduled from 15-16 December 2009. Submission to Member States is planned for early 2010. Comments from Member States are received until May 2010 and in the following months discussed and implemented, and a progress report to all Committees will be given in June 2010. Ms. Czarwinski pointed out that the Secretariat is striving for the approval of the BSS by the Committees for submitting the manuscript to CSS in October 2010.

Ms. Czarwinski then drew the attention of NUSSC to the key changes since June 2009. Prime work done was the development and inclusion of overarching requirements (i.e. general requirements: 5, planned exposure situations: 38, emergency exposure situations: 4, existing exposure situations: 6); other requirements were migrated to “has/have to” statements, or similar language. The Secretariat had incorporated all comments on draft 2.0 into draft 2.5, relocated some paragraphs in line with overarching requirements and added extensive text on radiation protection of the environment. Additional requirements regarding the responsibility of the regulatory body in occupational exposure part of chapter 3 (i.e. planned exposure situations) had been developed.

Ms. Czarwinski then presented the table of contents of the new draft 2.5 of BSS:

1. INTRODUCTION
2. GENERAL REQUIREMENTS FOR PROTECTION AND SAFETY
   Implementation of radiation protection principles
   Responsibilities of government
   Responsibilities of the regulatory body
   Responsibilities of other parties
   Management requirements
3. PLANNED EXPOSURE SITUATIONS
   Generic requirements
   Occupational exposure
   Public exposure
   Medical exposure

4. EMERGENCY EXPOSURE SITUATIONS
   Generic requirements
   Public exposure
   Exposure of emergency workers
   Transition from an emergency exposure situation to an existing exposure situation

5. EXISTING EXPOSURE SITUATIONS
   Generic requirements
   Public exposure
   Occupational exposure

SCHEDULES
   Schedule I EXEMPTION AND CLEARANCE
   Schedule II CATEGORIZATION OF SEALED SOURCES
   Schedule III DOSE LIMITS FOR PLANNED EXPOSURE SITUATIONS
   Schedule IV CRITERIA FOR USE IN EMERGENCY PREPAREDNESS AND RESPONSE

Ms. Czarwinski then focused on some requirements as example, where changes had been made during the recent revision (general requirement e.g. 2.4: Prime responsibility for protection and safety, and planned exposure situation e.g. requirement 3.17 justification, 3.33 optimization and requirement 3-8 dose limitation).

She then asked NUSSC for the approval of the draft for the submission to Member States.

Mr. Vaughan thanked Ms. Czarwinski for her presentation and pointed out that this was the first time that NUSSC had an opportunity to discuss the technical details of the revised BSS. He opened the floor for discussion. The Committee members were of the opinion that as they had not discussed the technical issues in draft 2.0 at the June2009 meeting, and thus more time was needed for the review. However, some NUSSC members had made comments on the draft to the Secretariat. Also it was noted that draft 2.5 was put on the website rather late; and, therefore there had not been sufficient time to review this text either. The chairman noted that draft 2.5 in his opinion was not ready for endorsement, because there were still open questions that should be resolved before sending the draft to Member States. He was concerned about how the Secretariat would resolve the questions and would the results be presented to NUSSC again?

NUSSC had four breakout sessions to review the draft 2.5 of the BSS. Each group produced written comments, which were later submitted to the Secretariat:

Results: Working group 1

In terms of subject headings, the organization conforms to GS-R-1.

In sections 2.13 – 2.16, different phrases are used to describe what seems to be the same thing. “Human health and environment”, “ecosystems in the environment”, and “people and the environment” all seem to be the same. One phrase should be consistently used. The latter phrase seems to be the best choice.

In 2.13, seems to be unnecessary, a reference to SF-1 could be sufficient, except that the definition offered in the footnote is inconsistent with the glossary in the BSS. Footnote 8 is missing. Footnote 9 on this page actually refers to 2.23.

In 2.35, such as designers, manufacturers,

In 2.43, add designers to the list.
In 2.45, add training here in some way – specific wording needed – in the context of ALARA. “Arrangements are made to train workers, including the use of mock-up facilities.”

**Results: Working group 2**

Section 3.1 to 3.49, Annexe 3 schedule III: General comments:

- Separate requirements between:
  - the regulator,
  - the licensee/operator,
  - the applicant,
  - See requirement 3-7 for example.
- There is some duplication with other IAEA requirements
- What about “one man” companies — Is it reasonable to have a management system?
  3.39: Requirement 3.1 gives room for graded approach. Is it applicable to the whole document or only to planned exposure situations?
- Consistency in wording
  - Shall or should. No “has to”.
  - Government or the regulatory body, government and the regulatory body?

Section 3.1 to 3.49, Annexe 3 schedule III: Specific comments

- Requirement 3.1: This overarching requirement (graded approach) should be somehow elaborated until guidance is published (use of graded approach for research reactor…)
- 3.12: What about the cumulative impact, and the need to regulate place, where individually cleared source would accumulate?
- 3.13 (b): it is not a systematic practice to have publication of the regulator assessment procedure. Even if most of such documents should be publicly available (those involving security aspects won’t be…)
- Requirement 3-4 deals with license conditions. But associated conditions don’t deal with them.
- Requirement 3-5: Why limiting prime responsibility to planned exposure situation? What about emergencies?
- 3.10 is inconsistent with requirement 3.3 as 3.3 states the regulator.
- 3.15 Other modifications, which may not have significant implications for protection and safety, may also need to be reported to the regulator…
- 3.16 (a): What means “operational life”? What about a disused source but still active source?
- 3.19 and 3.21: (human imaging) practices are generally deemed not justify but may be justified. Is it worth writing such requirement?
- Requirement 3-7: Why only putting the onus on the regulator? Why not on the licensee (3.23 should become and overarching requirement)?
- 3.29 Very cumbersome wording. It states a requirement to the user but via the licensee. 3.29 (the safety assessment by applicant/licensee) partly redundant with 3.30.
- 3.16: In the bullet list, training should be added.
- 3.47: Reporting requirement established by the regulator should also be recognized.

**Results: Working group 3**
• 3.75 (NEW parallel to 3.120): The regulatory body has to be responsible, as appropriate.

For: d) Provisions for maintaining records and results of assessment of occupational exposure; to be clarified that it is not the regulatory body to maintain records and results....

• 3.80. (3.71) {I.5} Employers, registrants or licensees have to ensure that workers exposed to radiation from sources within practices that are not directly related to their work or not required by their work receive the same level of protection as if they were members of the public.

The circumstances, in which the employer is responsible, instead of the licensee, should be clarified better.

• 3.85. (3.77) {I.11} If a worker identifies circumstances that could adversely affect protection and safety, the worker has to, as soon as feasible, better: without delay.

• 3.88. (3.82) Employers, registrants and licensees have to, as part of their responsibility for ensuring that occupational protection and safety are optimized in accordance with the relevant requirements of these standards:

Involve workers, through their representatives if appropriate, in optimization of protection and safety;

Use as appropriate constraints as part of optimization of protection and safety.

Optimization of protection, according SF 5 includes the requirement to provide the highest level of safety that can reasonably be achieved; moreover, sometimes occupational protection and safety may be conflicting, this should be singled out and instructions should be given.

Results: Working group 4

Editorial Comments:

(1) We had concerns about this following section: Requirement 3-28: Monitoring and reporting.

The regulatory body and the relevant parties shall ensure that environmental monitoring programmes are in place, and that the results are recorded and made available.

3.136. (3.120): The regulatory body has to be responsible, as appropriate, for:

(a) Review and approval of monitoring programmes of registrants and licensees, which have to be sufficient:

(i) To ensure that the requirements of these standards regarding public exposure in planned exposure situations are satisfied, and

(ii) To assess doses to the public;

(b) Review of periodic reports on public exposure (including results of monitoring programmes and dose assessments), submitted by registrants and licensees;

(c) Make provisions for an independent monitoring programme;

(d) Assessment of the total exposure of public from authorized sources and practices in the country based on the monitoring data provided by registrants and licensees and with the use of the independent monitoring data and assessments, as appropriate.

(e) Make provisions for maintaining records of radioactive discharges, results of monitoring programmes, and results of assessment of public exposure;
(f) Verification of compliance of an authorized practice with requirements of the 
standards on control of public exposure.

3.137. (3.121): The regulatory body has to publish or make available on request, as 
appropriate, results of source and environmental monitoring programmes and 
assessments of public exposure.

We believe that some of these: in particular c, d, e and f and 3.137 should not be the 
responsibility of the regulatory body but are more properly the responsibility of the 
licensee.

(2) Section 4 on Emergency Exposure Situations.

We believe it is essential that this section is consistent with other parts of the safety 
standards for example DS44, both in terminology and in technical requirements/guidance. 
For example „Emergency Exposure Situations“ is a term not used in DS44.

(3) Other detailed comments:

§ 3.125: When a source from a practice cause NONNEGligIBLE …“

C: as “non-negligible” is not defined in the glossary, it would be useful to 
provide further elaboration on the concept of non-negligible.

§3.126: Registrants, suppliers and suppliers of consumer products…

C: not clear the difference, if any, between “suppliers” and “suppliers of consumer 
products”, if any, regarding requirements they have to meet.

§ 3,135 (a): Operating experience:

C: some think is clearer if it says “Operating experience, for operation and 
design”

§4.1: The tense is not good English, not understood.

§4.5 (h): Preparations for the transition from emergency response to “an existing exposure 
situation”, used to be “recovery and remediation”. The group thinks that the former 
version “recovery and remediation” is understandable and the new one is not.

The chairman pointed out that there seemed to be a gap in the document as it moved from 
“planned exposures” to “emergency exposures” but did not cover accidental events of a 
more limited nature that not need full emergency preparedness arrangements to be invoked. 
He was thinking for example of small ingestions which would require actions to monitor and 
perhaps treat a person.

After a lengthy discussion that elaborated on the very special and rather complicated 
situation that the Secretariat was facing with the BSS revision (e.g. time constraints, many 
co-sponsors and as many MS, etc.), NUSSC agreed that they would not oppose sending the 
draft BSS to MS. The chair emphasized that this was not the normal way for approving 
documents in NUSSC.

It was expected that a further draft will be discussed at the NUSSC in October 2010 prior to 
submission to CSS, but this would not be the final stage of approval. Further discussions 
with co-sponsors would take place before “final” approval at the RASSC meeting in 
December 2010. It was agreed the chairman and any other NUSSC members who wished to 
be there, would attend this meeting to represent NUSSC interests.

NUSSC members requested some more time for review. Comments on the final version of 
DS379 should be sent (on the comment form) prior to MS to Secretariat by 6th November 
2009 (action 28.7).
NUSSC did not oppose that DS379 *International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources* could be submitted to MS.

3.5 DS351 Use of a graded approach in the application of safety requirements for Research Reactors

Mr. Winfield gave a presentation on the draft Safety Guide DS351. He reiterated that DS351 is a new safety guide and provides guidance on the use of the graded approach for safety requirements for research reactors as specified in NS-R-4. A graded approach is used to determine the appropriate manner to comply with a requirement. He emphasized that it is not used to provide relief from requirements. Graded approach means in practice that the level of analysis, verification, documentation, regulation, activities, procedures, frequency, etc. used to comply with a safety requirement, should be commensurate with the magnitude of the hazard.

Regarding the preparation process, the DPP was approved by NUSSC in October 2004 and by CSS in June 2005. The current draft was developed during five Consultancy Meetings and was subjected to internal review and approved by the Coordination Committee on 20 August 2009.

Mr. Winfield then briefly addressed the table of contents of the manuscript:

1. INTRODUCTION
2. BASIC ELEMENTS OF THE APPROACH TO GRADING
3. REGULATORY SUPERVISION
4. MANAGEMENT OF SUPERVISION
5. SITE EVALUATION
6. DESIGN
7. OPERATION
8. DECOMMISSIONING
9. ANNEX: EXAMPLE OF DESIGN BASIS GRADING.

Mr. Winfield informed NUSSC that draft 1 was uploaded to the website prior to the meeting. He received comments from seven NUSSC members: Egypt, France, Italy, Germany, Japan, Pakistan and USA. All comments were carefully considered and were useful for improving the quality of the document. Most of the comments were accepted. The table of resolutions was uploaded on the website before the meeting.

He then drew the attention of NUSSC to the resolution of comments, which resulted in a number of refinements: The clarity of text had been improved by the removal of a number of redundant paragraphs and editorial corrections, as well as an improved formatting and consistency in terminology. In addition, a graded approach reference list was expanded and updated.

Finally, Mr. Winfield asked NUSSC for the approval for submitting the draft to Member States for comment.

Mr. Vaughan thanked Mr. Winfield for his presentation and opened the floor for discussion. The Committee was quite satisfied with the draft and stated that the issue is very complex. The chairman reminded the Secretariat of the discussion that had taken place in the previous NUSSC meeting. It was agreed that the Secretariat should consider preparing a TECDOC on the application of “graded approach” for nuclear installations/facilities (action 27.6). He hoped that the Secretariat in the near future will produce a TECDOC on the graded approach for nuclear installations, based on this safety guide.

There were no further issues raised.
NUSSC agreed that the Safety Guide DS351 *Use of a graded approach in the application of safety requirements for Research Reactors* could be submitted to Member States.

3.6 **DS417 Meteorological and Hydrological Hazards in Site Evaluation for Nuclear Installations**

Mr. Godoy gave a presentation on the new Safety Guide DS417. This guide has merged the two existing safety guides NS-G-3.4 and NS-G-3.5. The objective is to provide guidance on evaluating hazards associated with meteorological and hydrological phenomena that may affect nuclear installation safety. It provides recommendations on determining the corresponding design bases, including measures for site protection. It is intended for use by regulatory bodies and for operating organizations. The scope is for the site selection and site evaluation processes for nuclear installations (new and existing installations) with regard to external meteorological and hydrological hazards.

Mr. Godoy informed the Committee that the safety guide was part of approved list of the long term structure of safety standards.

The draft incorporates experiences from recent occurrences of related severe external events (e.g. Indian Ocean Tsunami-December 2004), new developments or improvement of new assessment techniques (mainly in relation to tsunami hazard assessment). Lessons learned from flooding and extreme meteorological events, as well as experience feedback from Member States on hazard re-evaluations for these phenomena were taken into account. Climate change and IPCC’s latest findings were also addressed.

Mr. Godoy reiterated that the DPP was approved by NUSSC and CSS in the fourth quarter of 2007. The draft was subsequently prepared during eight Consultancy Meetings from end of 2007 until early 2009. Regarding the next steps, he informed the Committee that the draft will be submitted to WASSC in November 2009. Following the approval of both Committees, the draft will be sent to the Member States in November 2009. After compilation and implementation of the comments from MS by April 2010, the new draft will be reviewed again by NUSSC/WASSC in June 2010. After editing, the manuscript will be sent to the Commission in October 2010. The Secretariat aims for publication of the safety guide in the first quarter of 2011.

Then Mr. Godoy drew the attention of NUSSC to the contents of the draft safety guide:

1. INTRODUCTION
2. GENERAL CONSIDERATIONS AND RECOMMENDATIONS
3. NECESSARY INFORMATION AND INVESTIGATIONS (DATABASES)
4. METEOROLOGICAL HAZARDS ASSESSMENT
5. HYDROLOGICAL HAZARDS ASSESSMENT
6. DETERMINATION OF DESIGN BASIS PARAMETERS
7. MEASURES FOR SITE PROTECTION
8. CHANGES OF THE HAZARD WITH TIME
9. MONITORING AND WARNING FOR PLANT PROTECTION.
10. NUCLEAR INSTALLATIONS OTHER THAN NPPs
11. MANAGEMENT SYSTEM FOR HAZARD ASSESSMENTS

REFERENCES

ANNEX 1: Examples of meteorological and hydrological parameters and possible combination of events

ANNEX 2: Tsunami Hazard Assessment – Current Practice in some Member States (JAPAN and USA)

ANNEX 3: Tsunami Warning Systems

ANNEX 4: Climate Change
Mr. Godoy pointed out that the draft was uploaded on the SSC’s website prior to the meeting. He had received a total of 168 comments from NUSSC members (Austria 34, Canada 6, France 35, Germany 27, Japan 24, Pakistan 3, UK 6 and USA 33). He had accepted 138 comments and rejected 30 comments. A resolution tables and a new version were uploaded to website.

He then focused on the comments in more detail. As for the comments, he received a significant contribution from JAPAN and the USA regarding specific current practice for tsunami hazard assessment. Significant contribution was also provided by France and the USA regarding meteorological and hydrological hazard assessments in line with current (deterministic and statistical/probabilistic/uncertainties) methods and practices. Experts from the WMO and from the IPCC Working Group on climate change participated in the drafting of the safety guide.

Mr. Godoy then presented the main issues addressed in the comments: such as Tsunami induced by landslides and volcanic phenomena (status of research vs. current engineering practice), groundwater monitoring, use of probabilistic approach, and uncertainties, combination of events (Annexes 1 and 5 were merged), measures for site protection, monitoring and warning systems (meteorological and hydrological hazards were treated in a more balanced way and details were moved to Annex 3 for tsunami).

Mr. Godoy then asked the Committee for approval of the draft for sending it to Member States for comments.

He informed NUSSC that he wanted to present the draft to the “5 Years Indian Ocean Tsunami International Workshop” to be held from 11-15 January 2010 in Kalpakkam, India, and to use it for the review of the site re-evaluation of the Bataan NPP in Philippines, and asked for NUSSC’s approval to do so.

Mr. Vaughan thanked Mr. Godoy for his presentation and opened the floor for discussion. The Austrian NUSSC member stated that he had an obligation to hold the draft back, because he does not agree with some of the comments resolutions. As an example, he indicated that the recommendation to have an observation time for meteorological events of 30 years for defining the design basis meteorological event for a recurrence period of a hundred years makes no sense to him. Mr. Godoy in return explained that the World Meteorological Organization (WMO) uses that period of 30 years for calculating the “climate normal” for characterizing climate variability and for estimate of extreme values. NUSSC stated that it would be useful to make a footnote to WMO and IPCC in this regard. Another question was on why was lightning considered as a “rare event” when it happens frequently. Mr. Godoy also explained that lightning is considered a “rare” event in accordance with the meteorological definition provided in the guide in the sense that it is unlikely to be measured at a specific location because of its low frequency of occurrence at any single point and the destructive nature of the phenomena which may damage recording instruments. It is not the amount of lightning (or tornados) but the striking of such events at a given single point and the associated damage that is “rare”. The Committee agreed to send the draft to MS but asked each member to make sure that in the commenting meteorological experts are involved (action 28.11), because nuclear experts are not familiar with the definitions and the calculations models used by the meteorologists.

As for the permission to use the draft in a mission, NUSSC pointed out that it endorses only the formal use of published safety standards, not drafts. DS417 is different from DS424, which is like a user’s manual of IAEA Safety Standards. However, the Committee did not turn Mr. Godoy’s request down, but advised him to emphasize in his presentations that the text is still a draft.

 NUSSC agreed that Safety Guide DS417 Meteorological and Hydrological Hazards in Site Evaluation for Nuclear Installations could be submitted to MS.
NUSSC agreed that the Safety Guide could be presented to the Five Year Indian Ocean Tsunami International Workshop.

3.7 DS426 Periodic Safety Review of Nuclear Power Plants

Ms. Toth gave a presentation on DS426 (revision of NS-G-2.10). The objective of this safety guide is to provide recommendations to meet the requirements of NS-R-2 (currently under revision) for periodic safety review of NPPs, i.e. providing rationale and methodologies for PSR. She informed NUSSC that the guide applies to NPPs of any age including plants considering life time extension. The safety guide is intended for use by operating organizations, regulatory bodies, and by technical support organizations. Ms. Toth pointed out that the existing safety guide is sound, but it was necessary to provide additional recommendations on issues, such as follow-up PSRs, use of PSR as an input in assessing long term operation, new safety factors (management system and safety culture). In 2007, NUSSC decided that the long term operation (LTO) aspects, like the impact of ageing (mechanical and thermal fatigue) and more detailed information on global assessment should be also considered in this safety guide.

Ms. Toth briefly informed NUSSC on the previous preparation steps. The DPP was approved by the Coordination Committee in March 2008 and by NUSSC in May 2008. The draft was prepared in Consultants Meeting and a Technical Meeting between late 2008 and early 2009. A first draft was approved by the Coordination Committee in the third quarter of 2009. The draft is now due for approval by NUSSC, WASSC and RASSC for submission to Member States for comments.

The draft was uploaded at the website for comments prior to the meeting. She informed NUSSC that she had received a total 217 comments from NUSSC members (Austria 3, Canada 14, Finland 20, France 116, Germany 7, Pakistan 3, Sweden 7, UK 18, USA 3, ENISS 14, and WNA 12). 169 comments were accepted and 48 were rejected.

The resolution table of the NUSSC comments and a marked up version of the draft, which incorporated the comments were put on the website. The resolution was discussed with the respective NUSSC members. According to Ms. Toth, there were no unresolved issues. Finally, Ms. Toth asked NUSSC for approval to send the draft to Member States for comment.

Mr. Vaughan thanked Ms. Toth for her presentation and opened the floor for discussion.

The representative of ENISS felt that the guide is too detailed (108 pages) and too complex and thus not user-friendly. The majority of the Committee in return pointed out that the main body of the guide is only 67 pages; the rest is appendices for supporting information for the review and interfaces of the safety factors. NUSSC agreed that the important thing is that the guide covers all the important issues that were requested by the DPP. In particular for countries that make a PSR for the first time, a more detailed document is more useful. NUSSC concluded that the draft was now very well organized, more comprehensive, and provides good guidance to perform a PSR.

NUSSC agreed that the Safety Guide DS426 Periodic Safety Review of Nuclear Power Plants could be submitted to MS for comment.
4. REVIEW OF DOCUMENT PREPARATION PROFILES (DPPS)

4.1 DS432 DPP Radiation Protection of the Public and the Environment

Mr. Boal gave a presentation on the proposed DPP for DS432. He explained to NUSSC that in the revised BSS, three exposure situations i.e. planned, emergency and existing and three types of exposure, i.e. occupational, public and medical, are specially covered. The protection of the environment is an important additional issue.

He pointed out that DS432 is a new safety guide and is already included in the approved reference list of safety guides. The preparation of this guide is linked to revision of BSS. The new guide fits into the suite of general safety guides, such as the published Safety Guides on Occupational Radiation Protection and on Medical Exposures. Protection of the public is currently covered in a variety of facility and activity specific Safety Guides (NPPs, RRs, industrial, medical, waste).

According to Mr. Boal, there is a need for a safety guide to provide generic guidance for protection of public and the environment. This new guide supports and gives guidance on how to comply with the application of principles in SF-1 and the requirements in the DS379 (BSS).

Mr. Boal then explained the contents of the proposed Safety Guide, as set out in the DPP. The main topics are of generic nature:

- Justification in all exposure situations
- Optimization of protection in all exposure situations
- Dose and risk constraints in planned exposure situations …
- Reference levels in emergency and existing exposure situations …
- Representative person in all exposure situations
- Dose limit in planned exposure situation

Regarding the preparation of the safety guide, he informed NUSSC that the DPP had been approved by TRANSSC, WASSC and RASSC in June/July 2009. There were some changes to the text requested by these Committees, e.g. “Generic Criteria for” was removed from the title and a statement from SF-1 on protection of the environment was added.

As for the next steps, he stated that following the approval of the DPP by NUSSC, the DPP will be submitted for endorsement by CSS in 2010. A first draft will be ready in June 2011. Mr. Boal expects that the Committees and the Commission can approve the safety guide in 2012.

The draft DPP was uploaded to the website prior to the meeting. He had received comments from Japanese NUSSC member. He pointed out that he accepted most of the comments, but did not accept the comment to add “biological aspects” to Section 2 of the table of contents.

Finally, Mr. Boal asked NUSSC for the approval of the DPP for submission for sending it to the CSS.

Mr. Vaughan thanked Mr. Boal for his presentation and opened the floor for discussion. Japan asked for the reason why the comment was rejected. Mr. Boal in return explained that it was not the purpose of the safety standards to describe “biological aspects”, and that this was done in publications of UNSCEAR and ICRP, for example. Japan accepted the resolution of the Secretariat.

► NUSSC agreed that the DPP for safety guide DS432 Radiation Protection of the Public and the Environment could be submitted to CSS.
4.2 DS433 DPP Site Survey and Site Selection for Nuclear Installations

Mr. Godoy gave a presentation on the DPP for DS433. He informed NUSSC that this DPP is for the revision of current Safety Guide 50-SG-59, which was issued in 1984. The objective is to update the existing guide so that it can provide recommendations for the site selection activities for all types of nuclear installations. This is in particular needed for answering the requests that the IAEA is receiving from the “new build” NPP projects, and that has become a high priority task for the Agency. The guide will also provide the necessary links to concepts such as safety, environmental protection, management system considerations, and the demonstration of the feasibility of emergency planning. He pointed out that the updated information and the recommended methodologies in the guide are in line with NS-R-3 and the suite of safety guides in the “Site Evaluation” series, as well as with the new Safety Guide DS424 (under development).

Mr. Godoy then drew the attention of NUSSC to the table of contents of the proposed DPP:

1. INTRODUCTION
2. GENERAL CONSIDERATIONS FOR SITE SELECTION
3. SITE SURVEY FOR NUCLEAR POWER PLANTS
   3.1 Safety Related Criteria
   3.2 Other Criteria
   3.3 Phases of Site survey for Nuclear Power Plants
   3.4 Information and Investigations Necessary for Different Phases of Site Survey (Database)
   3.5 Screening Process
   3.6 Ranking Process
   3.7 Management System for the Site Survey for a Nuclear Power Plant
4. SITE SURVEY FOR NUCLEAR INSTALLATIONS OTHER THAN NPPs. (Similar structure as chapter 3).

REFERENCES
GLOSSARY

He then informed the Committee on the next steps in the development review process of this safety guide. Following the approval for development by NUSSC and WASSC in October/November 2009, DPP will be submitted to CSS for final endorsement during the first quarter 2010. Mr. Godoy expects that the first draft could be presented to NUSSC/WASSC in their joint meeting in June 2010. Submission to MS comments could take place from July until November 2010, followed by a second review by NUSSC/WASSC in June 2011. Following the approval of the two Committees, endorsement by CSS could be sought in October 2011. According to Mr. Godoy, publication of the safety guide could be possible in the first quarter of 2012.

Mr. Godoy informed the Committee that the draft DPP was posted on the website prior to the meeting and that he received a total of 21 comments from NUSSC members (Canada 3, EC 2, France 4, Germany 1, Pakistan 2, Spain 2, and USA 7).

He then presented some specific comments from NUSSC members:

- Canada commented that the document would not be needed since it is covered by NS-R-3. Secretariat provided reasons to differentiate “selection” from “evaluation”, and that this guide covers safety aspects of the early survey stage which are not requested in detail in the NS-R-3.
- EC asked for some clarification with regard to public acceptance and the link with non-safety aspects. Secretariat explained that this issue is not going to be addressed in the safety guide.
- France had submitted three proposals for changes. Secretariat accepted and reflected the changes in the new version. Radioactive waste repositories were not included.
- Germany: full support on the development of the document.
- *Spain*: full support for developing the document and offer to contribute to it.
- *USA commented to* consider security aspects, fuel cycle facilities, analysis of alternate options and gap analysis in criteria to be established. WASSC is included in DPP. Secretariat accepted this proposal.

According to Mr. Godoy, there were no unresolved issues.

Finally, he asked NUSSC for the approval of the DPP to be submitted to CSS.

Mr. Vaughan thanked Mr. Godoy for his presentation. There were no further issues raised.

- **NUSSC agreed that the DPP for DS433 Site Survey and Site Selection for Nuclear Installations could be submitted to CSS.**

### 4.3 DS435 DPP Safety of Small and Medium, Transportable and Floating Nuclear Power Plants

Mr. Gasparini gave a presentation on the DPP DS435. He informed NUSSC that it is a proposal for a new safety guide. He explained to NUSSC that there are several reasons for the preparation of such a guide. First of all, there are a number of Member States that have expressed interest in designing and building small nuclear power plants, including transportable ones. The current IAEA safety requirements for site, design and safety assessment are applicable although a graded approach may be appropriate. The current safety guides for the design of NPPs are technology-dependent to a large extent and do not address specific aspects related to these new reactors such as integrated systems (core and steam generators inside the vessel), transportable reactors, “nuclear battery” type reactors, or other features associated with their transportability. Thus the Secretariat sees a need to address these new designs in the safety standard series.

The objective of the new safety guide is to provide a set of recommendations that will facilitate the compliance of the designs with the existing safety requirements. The guide will mainly cover the assessment of the safety aspects of the design, whereas the legal, licensing, transport, siting aspects will be addressed only for specific designs.

According to Mr. Gasparini, the safety guide will address small and medium sized NPPs with the following types of reactors: with non-water cooled reactors, reactors without on-site refuelling, and transportable and barge mounted reactors. He emphasized that surface ships or submarines with a nuclear propulsion systems will not be addressed.

Mr. Gasparini informed NUSSC that the draft DPP had been uploaded on the website prior to the meeting. He had received a total of 38 comments from NUSSC and TRANSSC members (France 13, Japan 5, Pakistan 2, UK 5, USA 8, Russian Federation 3 and EC 2). All comments had been carefully considered and a new draft DPP was prepared for TRANSSC and NUSSC approval. Major concerns expressed in the comments had been that the development of the safety guide is premature, because of lack of consolidated experience and practice in the field.

He then explained the major changes in the new DPP were related to a better definition of the scope, i.e. small and medium size reactors, such as non-water cooled, reactors without on-site refuelling (“battery type” had been eliminated), and transportable and barge-mounted reactors. TS-R-1 was added to the list of interfacing documents and the list of contents was revised accordingly.

Mr. Gasparini informed NUSSC that the DPP had been discussed and approved by TRANSSC on 9th October 2009 with no changes but waiting for the resolution by NUSSC.
He then drew the attention of the Committee on the revised table of contents:

**INTRODUCTION**
- Objective
- Scope
- Structure

**GENERAL SAFETY FRAMEWORK**
- General considerations for safe design and safety assessment

**NPPs WITH NON WATER COOLED REACTORS**
- Specific features and evaluation of the design basis
- Core and reactor control
- Reactor cooling and heat removal
- Confinement of fission products

**NPPs WITHOUT ON-SITE REFUELING**
- Specific features and evaluation of the design basis
- Core and reactor control
- Reactor cooling and heat removal
- Confinement of fission products
- Licensing and regulatory issues

**NPPs WITH TRANSPORTABLE AND BARGE-MOUNTED REACTORS**
- Specific features and evaluation of the design basis
- Core and reactor control
- Reactor cooling and heat removal
- Confinement of fission products
- Licensing and regulatory issues

Finally, Mr. Gasparini asked for the approval of the DPP for the submission to CSS.

Mr. Vaughan thanked Mr. Gasparini for his presentation and opened the floor for discussion.

NUSSC had a lively discussion on the DPP. It was stated that the scope is too broad, both in the power range (approximately up to 600MWe, which could encompass a majority of current reactors) and technology (LWR and non-LWR designs, noting several current reactors were of the latter-type). However, many NUSSC members were of the opinion that the concepts should be elaborated a bit more, because it seemed that assistance may be needed for Member States that have to face the request of building new types of reactors. There are already several possible conceptual designs available (see item 5.2). However, some NUSSC members were of the opinion that it is not possible to issue safety standards if there is lack of detailed information, consolidated experience and practice on a specific reactor system. A future safety guide should cover not only safety issues, but construction issues in addition, because guidance currently available for the latter is not fully applicable.

The Committee discussed the feasibility of the preparation of such a guide and came to the conclusion that the DPP DS435 should be put on hold. However, NUSSC identified the following three main issues:

1. There exists some technical experience on floating and transportable reactors (e.g. ships, icebreakers, submarines). This technical experience has to be collected and evaluated.

2. As a first step, it has to be confirmed that the current safety requirements are general enough to provide also guidance on the various non-LWR reactor designs. In addition, it has to be assessed if a selection of reactor designs is needed to reduce the scope of a future document, e.g. focus on designs that are most likely realized, such as LMR (fast breeders) and HTR (modules). The development of a road map in that regard should be discussed.

3. Licensing seems to be a very complex issue, in particular, if the reactors are transported from one country to the other.
NUSSC agreed that at the next meeting in June 2010, they will discuss what kind of actions will be undertaken with regard to the three issues, i.e. preparation of a safety standard or TECDOC.

The chairman informed NUSSC that at the 26th CSS meeting from 14-16 October 2009 Mr. Khoroshev (IAEA/INPRO) had presented an INPRO Study on “Legal and Institutional Issues of Transportable NPP”. With regard to this presentation, CSS had put forward a request to the four Safety Standard Committees and the Secretariat to identify the safety issues associated with such reactors (action 28.12). CSS will discuss these issues at their meeting in October 2010.

NUSSC agreed that the DPP for DS435 Safety of Small and Medium, Transportable and Floating Nuclear Power Plants was put on hold. A decision how to proceed will be made at the 29th NUSSC meeting.

4.4 DS436 DPP Instrumentation and Control and Software Important to Safety for Research Reactors

Mr. Boogaard gave a presentation on the DPP for DS436. He informed NUSSC that the proposed safety guide supplements and elaborates on the safety requirements for instrumentation and control and software important to safety for research reactors which are presented in NS-R-4. The objective of the safety guide is to provide practical guidance on safety aspects of the design and operation of I&C systems (including computer based systems and software for research reactors and experimental facilities) and on safety aspects of the upgrading and refurbishment of I&C systems for research reactors.

He informed NUSSC that in 2005, the safety requirements “Safety of Research Reactors” (NS-R-4) was published. The need to develop an I&C safety guide for research reactors was expressed by a number of Member States during safety review missions. The DPP had been approved by the Coordination Committee in August 2009. The specificity of classification of safety systems, safety related systems for research reactors and I&C systems for experiments, is related to the need to apply a graded approach. However, the safety guide will be developed in a consistency with DS431 covering I&C for NPPs.

Mr. Boogaard then focused on the proposed table of contents of the DPP:

1. INTRODUCTION
2. SAFETY CLASSIFICATION OF INSTRUMENTATION AND CONTROL SYSTEMS
   • Safety systems
   • Safety related systems
   • System not important to safety
3. I&C SYSTEM ARCHITECTURE
   • Supervision level
   • Control level
   • Field level
4. DESIGN GUIDELINES
   • Reactor shut down system
   • Reactor protection system
   • Experiment control systems
5. HUMAN MACHINE INTERFACE
6. COMPUTER BASED SYSTEMS AND SOFTWARE
   • Development
   • Verification
   • Validation
   • Security aspects
7. I&C MODIFICATION PROJECTS

- Safety considerations
- Review and assessment

Mr. Boogaard informed NUSSC that the DPP had been uploaded to the website for comments prior to the meeting. He had received a total of five comments from NUSSC members (EC; France; Germany; Pakistan and USA). All comments had been carefully considered and the majority had been accepted. Security aspects for computer based systems and software in chapter 6 had been added to the text. The comments resolution table had been uploaded on the website prior to the meeting.

Regarding the next steps in the development of the guide, Mr. Boogaard pointed out that following the NUSSC approval, the DPP will be submitted to CSS in March 2010. A first draft will be most likely available in February 2011. After the approval of NUSSC, the manuscript will be sent to MS in June 2011; approval of NUSSC for sending the manuscript to CSS is foreseen in June 2012. Mr. Boogaard expects that the guide could be finally endorsed by the Commission in October 2012; publication could take place in early 2013.

Finally, Mr. Boogaard asked NUSSC for the approval to send the DPP to CSS.

Mr. Vaughan thanked Mr. Boogaard for his presentation and, after noting some concern at the recent CSS meeting about proliferation of guides during their consideration of DS431, opened the floor for discussion.

Some of the NUSSC members were concerned that the Secretariat is going into the wrong direction again by producing more guides. Regarding the scope, only one issue of the scope of the manuscript is specific to RR (i.e. experiments) the rest is the same as for NPP. They were concerned about the consistency of the RR and NPP guides and wanted to see these documents merged at some stage in future.

Mr. Boogaard in return did not agree completely and brought forward the argument that due to the differences in complexity, a combined guide will consist of one or two chapters that covers RR and NPP together and that the others chapters will discuss the specific guidance for NPPs and RRs separately. The director of NSNI defended a stand alone guide and stated that he even doubts the usefulness of a general chapter for the users; he pointed out that in reality, RR people deal only with RR and not with NPPs and vice versa.

▶ NUSSC agreed that the DPP for DS436 Instrumentation and Control and Software Important to Safety for Research Reactors could be submitted to CSS.

4.5 DS437 DPP Regulations for the Safe Transport of Radioactive Material, 20XX Edition

Mr. Stewart, Transport Safety Unit, gave a presentation on the DPP for DS437. He informed NUSSC on the two year review, which means that TRANSSC reviews the status of TS-R-1 (and transport standards in general) every 2 years. This is in line with the practise of other UN bodies. In doing that, Member State input is invited, a cost benefit review on each “issue” is done, and a solution path is chosen for each “issue”. Finally, criteria had been developed to judge whether a revision of TS-R-1 is required.

He pointed out that in the 2007 review, several issues had been identified, but no consensus was reached on the most significant issues. Thus the conclusion was that no revision was required.

According to Mr. Stewart, TRANSSC works with working material, which was used to “store” the results of the 2007 review, based on published Edition of TS-R-1. The working material has been amended to include issues where the solution path is “regulatory change”
and reasonable consensus achieved. An additional table shows all outstanding issues that are being worked on.

He then drew the attention to the 2009 review and pointed out that about 500 comments had been received regarding improvements to working material for TS-R-1 (400) and TS-G-1.1 (100). In addition, 24 new proposals and 9 proposals for on-going issues had been submitted. TRANSSC concluded in October 2009 that a revision is called for; the DPP was amended and approved in principle. The changes to fissile exceptions are sufficient to warrant a new edition. Changes should be primarily in the areas already identified by TRANSSC during its 19th meeting and other issues nearing completion, such as NORM may be included.

Mr. Stewart expanded that TRANSSC had identified potential areas for the revision, e.g. fissile, package testing, radiation protection and surface contamination. The final conclusion in relation to surface contamination was that the application was not considered sufficiently user-friendly and that changes should not be made in this area.

He then informed NUSSC on the current table of contents:

I. Introduction
II. Definitions
III. General Provisions
IV. Activity Limits and Classification
V. Requirements and Controls for Transport
VI. Requirements for Radioactive Materials and for Packaging and Packages
VII. Test Procedures
VIII. Approval and Administrative Requirements

References
Annex I: Summary of Approval and Prior Notification Requirements
Annex II: Conversion Factors and Prefixes
Annex III: Guiding Principles Underlying the IAEA Transport Regulations
Contributors to Drafting and Review
Bodies for the Endorsement of Safety Standards
Index

Finally, Mr. Stewart pointed out that NUSSC recognizes that the TRANSSC amendments are new and thus are asking for a “decision in principle” at this time. However, comments are welcome until two months after the last Committee sees the DPP, i.e. until the end of November 2009.

Mr. Vaughan thanked Mr. Stewart for his presentation. There was no further issue raised.

► NUSSC agreed that the DPP for DS437 Regulations for the Safe Transport of Radioactive Material could be submitted to CSS.

5. MISCELLANEOUS

5.1 Feedback from IRS Topical Studies

Mr. Lipar gave a presentation on the feedback from OSART missions and NSNI programmes. As an introduction, he explained to NUSSC that the Secretariat collected feedback from OSARTs, which had been used in the ongoing revision of NS-R-2 and incorporated particularly into the following requirements:

• Requirement 4: Staffing of the operating organization,
• Requirement 8: Performance of safety related activities,
• Requirement 23: Non-radiation-related safety,
• Requirement 27: Operation control rooms and control equipment,
• Requirement 29: Chemistry programme.

Feedback from the current IAEA/NSNI programmes had been implemented into NS-R-2 as well, in particular:
• Requirement 2: Management systems,
• Requirement 13: Equipment qualification,
• Requirement 14: Ageing management,
• Requirement 16: Long term operation programme,
• Requirement 17: Consideration of nuclear security aspects in safety programmes.

Mr. Lipar then drew the attention of NUSSC to the Feedback from the Technical Meeting on IRS Topical Studies and IRS Events to Safety Standards.

The objective of this meeting was to review the recommendations raised in the IRS topical studies and selected events in IRS database against the IAEA Safety Standards in order to enhance the quality of the safety standards. This review had been considered necessary in order to give a feedback in the revision of the safety standards.

He pointed out that the meeting highlighted the extent to which the operating experience feedback from IRS had already been incorporated in the IAEA Safety Standards. The identified gaps would provide an important feedback to enhancing the quality of IAEA Safety Standards.

Mr. Lipar then informed the Committee on the main conclusions regarding the revision of safety standards. He emphasized that the recommendations made in the topical studies and the lessons learned from significant events had been mostly covered in the requirements and in the safety guides.

However, some important gaps identified were in the areas of interaction between the grid and the NPPs, foreign material exclusion, and reactivity control (TM reactivity events). It was suggested that the IAEA should consider the preparation of safety standard to cover the construction phase for new NPPs.

Mr. Lipar pointed out that the review of recommendations and lessons learnt provide guidance for the revision of the safety standards, e.g.:

• Situations requiring revision of the acceptance criteria in NS-G-2.6,
• Assessment of the capacity of the emergency diesel generators against load variations as a result of changes in the grid frequency in NS-G-1.8,
• Specific issues related to the ageing management of control rod drive mechanism in the load following plants in NS-G-1.12.

As a result from the feedback from events, a new text had been prepared in the following requirements of NS-R-2:
• Requirement 1: Responsibilities of operating organization
• Requirement 28: Material conditions and housekeeping
• Requirement 30: Core management and fuel handling

Mr. Vaughan thanked Mr. Lipar for his presentation. NUSSC agreed that this was a very good initiative and welcomed that this feedback will be done frequently for OSART missions with regard to the safety standards.

5.2. Advanced Reactor Designs

Mr. Mayfield gave a presentation on advanced reactor designs. He informed NUSSC that there is an increasing interest in small modular reactors, which is driven by the desire to
reduce capital costs and to provide power away from large grid systems. He gave a comprehensive overview of the very diverse technologies that are currently under development:

- **Integral Pressurized Water Reactors (iPWRs)**
  - Westinghouse IRIS, 335 MWe, seismic isolator,
  - NuScale, 45 MWe, natural circulation,
  - B&H mPower, 125 Mwe, air-cooled condenser,
  - South Korea’s SMART, 100 MWe, focus on desalination.

Main designs features of Integral PWR Designs are:
- Steam Supply System Inside Reactor Pressure Vessel
- Enhanced Safety Features
- Passive Safety Features
- Fuel Similar to Present LWRs
- Modular Construction
- More Time Available to Respond to Transients

- **High Temperature Gas-Cooled Reactors (HTGRs)**
  - Pebble Bed Modular Reactor (PBMR), 165 MWe,
  - General Atomics Gas Turbine Modular Helium Reactor (GT-MHR), 280 MWe.

Main designs features of HTGR are:
- Helium Gas-Cooled and Graphite Moderated,
- Thermal neutron spectrum reactor with core outlet temperatures greater than 750°C,
- May be used for support to production of hydrogen, electricity, as well as to process heat applications,
- Fuel: TRISO particles less than a millimetre in diameter,
- Fuel arrangement is either stationary fuel in prismatic blocks or pebble-bed.

- **Liquid Metal Reactors (LMRs)**
  - Toshiba 4S, 10 MWe (up to 135 Mwt), fuel life of 30 years,
  - General Electric PRISM, 311 MWe, among fast reactor designs for closing fuel cycle,
  - Lead-Bismuth Fast Reactor (SVBR) Russian Design, 75-100 MWe, integral design able to use a wide variety of fuels.

Main designs features of LMR are:
- Designed to use full energy potential of uranium,
- Uses liquid sodium as the reactor coolant, allows for high power density with low coolant volume fraction,
- Reactor arranged in pool layout or a compact loop layout,
- Operate at or near atmospheric pressure,
- Passive Safety Features,
- Designs for remote locations (e.g., Toshiba 4S),
- Designs for closing nuclear fuel cycle,

- **Molten Salt Reactors (MSRs)**

Main design features of MSR:
- Fuel: molten mixture of lithium and beryllium fluoride salts with dissolved enriched uranium, thorium or U-233 fluorides,
- Core consists of unclad graphite moderator arranged to allow the flow of salt at around 700°C and at low pressure,
• Heat transferred to secondary salt cycle and then to steam,
• Fission products dissolve in salt and are removed continuously in an on-line reprocessing loop and replaced with TH-232 or U-238.

- Several Other Innovative Reactor Designs (e.g. Hyperion, Travelling Wave Reactor, Accelerator Driven Systems, Others from Defence, Propulsion, and Space Applications, and Mobile and Floating Reactors)

- Technologies Selected by the Generation IV International Forum for further study:
  - Gas-Cooled Fast Reactors,
  - Very-High-Temperature Reactors,
  - Supercritical-Water-Cooled Reactors,
  - Sodium-Cooled Fast Reactors,
  - Lead-Cooled Fast Reactor,
  - Molten Salt Reactors.

Finally, Mr. Mayfield presented some key issues regarding small and medium size reactors (SMR) that in his opinion should be considered when preparing a future document:

- Source Term,
- Emergency Planning,
- Security,
- Staffing Levels,
- Process Heat Applications/Nearby Facilities,
- Containment Functional Requirements,
- Materials Qualifications,
- Modular Units/Expandable Site,
- Waste Storage,
- Proliferation Resistance.

Mr. Vaughan thanked Mr. Mayfield for his excellent presentation, which was voluntarily prepared on short notice. There was a lively and detailed discussion on how to proceed with this issue in future (see item 4.3, DPPDS436). The chairman asked members to send in comments on the subject of new reactor designs to prime the discussion at the next NUSSC meeting. Offers of presentation to the next meeting are welcomed.

5.3 5th Three Year Report of NUSSC

Mr. Feige presented the outline of the fifth three year report of NUSSC:

- INTRODUCTION (purpose of the report)
- BACKGROUND (historical reflection of NUSSC and SSCs)
- ROUTINE WORKING PROCEDURES (how NUSSC works)
- REVIEW OF NUSSC WORK (what NUSSC has done)
- CONCLUSIONS BY THE COMMITTEE AND RECOMMENDATIONS TO THE SECRETARIAT
- ATTACHMENTS
  Terms of Reference
  Nuclear Safety Standards Committee Membership
  Meetings of the Nuclear Safety Standards Committee
  Documents reviewed by the Nuclear Safety Standards Committee

Mr. Feige pointed out that the previous three year reports were all rather detailed. This format had been agreed on by the Committee, with the intention that these reports are to be
used in two different manners, as a kind of training tool for new NUSSC members and as a comprehensive archive document covering an entire NUSSC term.

Mr. Vaughan thanked Mr. Feige for his presentation and asked the Secretariat to prepare a first draft for the next NUSSC meeting. He also asked members to suggest topics that should be covered in the report.

6. CLOSURE OF THE MEETING

6.1 Actions following 28th NUSSC Meeting

Mr. Feige presented a list of actions following the 28th NUSSC Meeting (Appendix II). NUSSC approved the list.

6.2 Conclusions

Mr. Vaughan concluded the meeting by stating that despite this meeting had again been a very busy one all agenda items were dealt with.

He thanked the Committee for their contributions and the highly professional discussions, in particular, in the breakout session on the BSS and the issues of small and medium size reactors. He stated that to him the breakout sessions seem a good activity for increasing the involvement of the Committee and hence should be done on a more frequent basis with different issues. The next issues in that regard could be the further discussion on SMR and the amendments to the long term list of safety standards.

Mr. Jamet, Director of NSNI, concluded the NUSSC meeting and thanked Mr. Vaughan and the Committee for a productive meeting. He, too, appreciated, in particular, the helpful discussion on the issue of SMR and transportable reactors.
PARTICIPATION

NUSSC Members and Consultants

Mr. D. Merrouche  Algeria
Mr. R. Waldman  Argentina
Mr. S. Sholly  Austria
Mr. B. De Boeck  Belgium
Mr. A. Gromann De Araujo Góes  Brazil
Mr. G. Ishak  Canada
Mr. J. Peng  China
Mr. I. Valčić  Croatia
Mr. M. Svat  Czech Republic
Mr. P. Salminen  Finland
Mr. K. Valtonen  Finland
Mr. F. Feron  France
Ms. C. Wassilew  Germany
Ms. D. Heick  Germany
Mr. M. Mertins  Germany
Mr. F. Adorján  Hungary
Mr. K. K. Vaze  India
Mr. H. Hirshfeld  Israel
Mr. G. Bava  Italy
Mr. T. Oshima  Japan
Mr. H. Ikeda  Japan
Mr. H. Okamoto  Japan
Ms. H. Tezuka  Japan
Mr. M. Demčenko  Lithuania
Mr. M. A. Habib  Pakistan
Mr. M. Jurkowski  Poland
Mr. L. Biro  Romania
Mr. Y. Baranaev  Russian Federation
Mr. D. Vojnovič  Slovenia
Mr. J. Zarzuela  Spain
Mr. J. Yl-era  Spain
Mr. P. Flury  Switzerland
Mr. G. Vaughan  United Kingdom (Chairman)
Mr. M. Bassett  United Kingdom
Mr. A. George  United Kingdom
Ms. J. Patel  United Kingdom
Mr. M. Mayfield  USA
Ms. S. Devlin  USA

International Organizations

Mr. S. Vigne  EC
Ms. V. Ranguelova  EC
Mr. B. Fourest  ENISS/EDF
Mr. J.P. Bouard  IEC/SC45A
Mr. B. Sevestre  ISO
Ms. I. Borysova  WNA
Mr. T. Fröhmel  WNA
### IAEA Staff Members

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Ph. Jamet</td>
<td>DIR-NSNI</td>
</tr>
<tr>
<td>Mr. G. Feige</td>
<td>NSNI/RAS (Scientific Secretary of NUSSC)</td>
</tr>
<tr>
<td>Mr. J. Boogaard</td>
<td>NSNI/RRSS</td>
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<tr>
<td>Mr. A. R. Godoy</td>
<td>NSNI/ISSC</td>
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<tr>
<td>Mr. M. Gasparini</td>
<td>NSNI/SAS</td>
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<tr>
<td>Mr. M. Kearney</td>
<td>NSNI/OSS</td>
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<tr>
<td>Mr. M. Lipar</td>
<td>NSNI/OSS</td>
</tr>
<tr>
<td>Ms. C. Toth</td>
<td>NSNI/SAS</td>
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<tr>
<td>Mr. D. Winfield</td>
<td>NSNI/RRSS</td>
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<tr>
<td>Mr. D. Delattre</td>
<td>NS-SSCS</td>
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<tr>
<td>Ms. E. Buglova</td>
<td>NS-IEC</td>
</tr>
<tr>
<td>Ms. R. Czarvinski</td>
<td>NSRW/RSM</td>
</tr>
<tr>
<td>Mr. T. Boal</td>
<td>NSRW/RSM</td>
</tr>
<tr>
<td>Mr. J. Stewart</td>
<td>NSRW/RIT</td>
</tr>
<tr>
<td>Mr. Y. K. Zhao</td>
<td>NSRW/RIT</td>
</tr>
<tr>
<td>Mr. Ph. Metcalf</td>
<td>NSRW/WES</td>
</tr>
</tbody>
</table>
## AGENDA

### 28th Meeting of the Nuclear Safety Standards Committee (NUSSC)

**20-22 October 2009, Vienna**

**Boardroom A (M0237), 09:30 a.m.**

**Tuesday, 20 October 2009**

<table>
<thead>
<tr>
<th>1. GENERAL ISSUES</th>
<th></th>
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</thead>
</table>
| 1.1 Opening of the Meeting | Mr. Ph. Jamet  
DIR-NSNI |
| 1.2 Chairman’s Introduction | Mr. G. Vaughan |
| 1.3 Adoption of the Agenda of 28th Meeting | For approval  
NUSSC Members |
| 1.4 Approval of the minutes of the 27th Meeting | For approval  
NUSSC Members |
| 1.5 Actions of 27th NUSSC Meeting | For information  
Mr. G. Feige |
| 1.6 Dates of the next meetings: | For approval  
NUSSC Members |
|   - 29th NUSSC: 28 June – 2 July 2010  
(Joint meeting with WASSC for 1 or ½ day tbd) | |
|   - 30th NUSSC: 12 - 15 October 2010 | |
| 1.7 NUSSC Working Methods Issues: | For information and discussion  
Mr. G. Feige,  
Mr. G. Vaughan,  
NUSSC Members |
|   - Involvement from a wider number of members | |
| 1.8 Feedback on Regulatory Arrangements and Current Developments in NUSSC Member States: | For information  
NUSSC Members |
|   Germany, Czech Republic, Slovenia, Spain, EC | |
| 1.9 Report on International Activities: | For information  
Mr. K. Valtonen |
|   Lessons learned from Olkiluoto Project (EPR) | |
| 1.10 Report on Site Activities EPR Flamanville 3 Reactor | For information  
Mr. B. Fourest |
| 1.11 Construction Oversight of the EPR | For information  
Flamanville 3 Reactor  
Mr. F. Feron |
1.12 Interaction with other Committees: Report from the previous 4 Chairs Meetings (3rd July and 13th October 2009) For information Mr. G. Vaughan

1.13 Report of the 26th CSS meeting For information Mr. D. Delattre

2. STRATEGY FOR FUTURE DEVELOPMENT AND APPLICATION OF THE IAEA SAFETY STANDARDS

2.1 "Strategies and Processes for the Establishment of Safety Standards (SPESS)" - Status after 26CSS meeting For information Mr. D. Delattre

2.2 Policy Paper on Stakeholder Involvement For information and discussion Mr. D. Delattre

Wednesday, 21 October 2009 at 9:30 a.m.

3. REVIEW OF DRAFT SAFETY STANDARDS

3.1 DS44 Criteria for Use in Planning Response for Nuclear and Radiological Emergencies For approval for submission to CSS Ms. E. Buglova

3.2 DS371 Storage of Spent Fuel For approval for submission to CSS Mr. Ph. Metcalf

3.3 DS413 Safety Requirement – Safety of Nuclear Power Plants: Commissioning and Operation For approval for submission to CSS Mr. M. Kearney

3.4 DS379 Protection against Ionizing Radiation and for the Safety of Radiation Sources (Rev BSS) For approval for submission to MS Ms. R. Czarvinski

3.5 DS351 Use of a Graded Approach in the Application of Safety Requirements for Research Reactors For approval for submission to MS Mr. D. Winfield

3.6 DS417 Meteorological and Hydrological Hazards in Site Evaluation for Nuclear Installations For approval for submission to MS Mr. A. Godoy

3.7 DS426 Periodic Safety Review of Nuclear Power Plants For approval for submission to MS Mr. C. Toth

4. REVIEW OF DOCUMENT PREPARATION PROFILES (DPPs)

4.1 DS432 DPP Radiation Protection of the Public and the Environment For approval for submission to CSS Mr. T. Boal
4.2 DS433 DPP Site Survey and Site Selection for Nuclear Installations For approval for submission to CSS Mr. A. Godoy

4.3 DS435 DPP Safety of Small/Medium, Transportable and Floating Nuclear Power Plants For approval for submission to CSS Mr. M. Gasparini

4.4 DS436 DPP Instrumentation and Control and Software Important to Safety for Research Reactors For approval for submission to CSS Mr. J. Boogaard

4.5 DS437 DPP Regulations for the Safe Transport of Radioactive Material, 20XX Edition For approval for submission to CSS Mr. J. Stewart, Mr. Y.K. Zhao

Thursday, 22 October 2009 at 9:00 a.m.

5. MISCELLANEOUS

5.1 Feedback from IRS Topical Studies For information and discussion Mr. M. Lipar

5.2 Advanced Reactor Designs For information and discussion Mr. M. Mayfield

5.3 5th Three year report of NUSSC For discussion and providing input Mr. G. Feige NUSSC Members

6. CLOSURE OF THE MEETING

6.1 Actions following 28th NUSSC Meeting For discussion and providing input Mr. G. Feige NUSSC Members

6.2 Conclusions

Mr. Ph. Jamet
DIR-NSNI

Mr. G. Vaughan
NUSSC Chairman
## APPENDIX II

### Actions Following 28th NUSSC Meeting

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
<th>Who</th>
<th>When</th>
<th>Status</th>
</tr>
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<tbody>
<tr>
<td>28.1</td>
<td>Sent suggestions for 5th Three Year Report of NUSSC to Secretariat</td>
<td>NUSSC members</td>
<td>ASAP</td>
<td></td>
</tr>
<tr>
<td>28.2</td>
<td>Provide nominations for a small NUSSC group to attend the RASSC/WASSC Meeting 6-10 December 2010 (Mr. Vaughan, Mr. Sholly already volunteered)</td>
<td>NUSSC members</td>
<td>Next NUSSC Meeting</td>
<td></td>
</tr>
<tr>
<td>28.3</td>
<td>Send presentations on regulatory arrangements and developments and using the IAEA safety standards.</td>
<td>NUSSC members from Hungary, Indonesia, Sweden, Pakistan, Malaysia and Romania</td>
<td>Next NUSSC meeting</td>
<td></td>
</tr>
<tr>
<td>28.4</td>
<td>Send suggestions for new ToR for the Committees to Secretariat</td>
<td>NUSSC members</td>
<td>Next NUSSC Meeting</td>
<td></td>
</tr>
<tr>
<td>28.5</td>
<td>Send comments on the final version of SPESS to Secretariat</td>
<td>NUSSC members</td>
<td>End of 12/09</td>
<td></td>
</tr>
<tr>
<td>28.6</td>
<td>Send comments on stakeholder involvement document to Secretariat</td>
<td>NUSSC members</td>
<td>End of 12/09</td>
<td></td>
</tr>
<tr>
<td>28.7</td>
<td>Send comments (on comment form) on final version of DS379 prior to MS to Secretariat</td>
<td>NUSSC members</td>
<td>6th Nov.09</td>
<td></td>
</tr>
<tr>
<td>28.8</td>
<td>Send comments and suggestions on the review of the set of safety standards in the light of the discussions in the NUSSC meeting</td>
<td>NUSSC members</td>
<td>Next NUSSC Meeting</td>
<td></td>
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<tr>
<td>28.9</td>
<td>Send suggestions for issues to be discussed in the joint meeting with WASSC in June 2010 or other SSC.</td>
<td>NUSSC members</td>
<td>ASAP</td>
<td></td>
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<tr>
<td>28.10</td>
<td>Submit to NUSSC final version of NS-R-2 after RASSC/WASSC Meeting</td>
<td>GF/MK</td>
<td>End of 11/09</td>
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<tr>
<td>28.11</td>
<td><em>Involve meteorological experts in DS417 MS review</em></td>
<td>NUSSC members</td>
<td></td>
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<tr>
<td>28.12</td>
<td>Request by CSS: Identify safety issues regarding small and medium size reactors.</td>
<td>NUSSC members</td>
<td>Next NUSSC Meeting</td>
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